National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
2101 NASA Parkway
Houston, Texas 77058-3696

January 9, 2008

Reply to Attn of : ZS-08-007

TO: XA/Manager, Extravehicular Activities Office

FROM: ZS/Manager, Lunar Surface Systems Project Office

SUBJECT: Constellation Field Operations

Dear Mr. Doering,

When we initiate lunar exploration under the Constellation Program (CxP), we will be embarking on planetary surface operations for the first time since Apollo 17 left the lunar surface in December 1972. The immense success of the Apollo Program was based, in part, on the ability of the astronauts and the system hardware to support effective lunar surface operations, including the conduct of geologic fieldwork. This activity is markedly different from the scientific activities we have done on the Space Shuttle and the International Space Station (ISS), and will require different hardware, operations and crew training approaches than we have pursued over the last 25 years.

To completely understand the demands on hardware, crew training, and mission operations concept development, a series of field trips to analog sites in the western United States are being planned. The first of these was a one-day trip conducted in concert with the National Aeronautics Space Administration (NASA) Advisory Council in Arizona in February of last year. This trip was a significant success; in particular, many participants who were not trained geoscientists stated at the end of the trip they finally understood the differences between what NASA has been doing since 1981 and what we are planning to do beginning in 2020. As a result of that success, CxP's Lunar Surface Systems (LSS) Project Office is sponsoring a second field trip February 25-28, 2008.

Your organization will be involved in development of hardware, training of crewmembers to conduct future lunar surface extravehicular activities (EVAs) or the operational control of those EVAs. The success of your organization's efforts will be based, in part, on a firm understanding of the nature of surface geologic operations. Consequently, we are requesting that you nominate one person to attend this four-day activity. In particular, we would like that person to be directly involved with the management of the new suit system. In the course of this exercise, they will be paired with an experienced field geologist who will conduct a two-day field mapping exercise at an analog field area that is similar to that of the lunar surface.

The purpose of this trip will be for the participants to understand the nature of geologic field operations, why things are done in a particular manner, and how that kind of operation will

impact a particular subsystem design or operational approach. The activity will begin on the evening of February 25, 2008, with a pre-brief on the field area and what operations will take place. This will be followed by two days of field mapping in the analog area February 26-27, 2008. The evening of February 26, 2008, will be devoted to discussing the results of that day's field mapping, with an eye toward modifying the operational plan for the next day, mimicking the kind of operational planning cycle we expect to take place on the lunar surface. The evening of February 27, 2008 will be spent in a group debrief of the accomplishments and lessons learned from the two days in the field. Because the evening debriefs will be critical to the understanding of this field exercise, each participant should plan to attend the full exercise.

A presentation that will provide more detailed information on geologic field operations, the history of these kinds of operations on Apollo, and the objectives for the current series of field trips will be sent to you in a separate e-mail. Please feel free to contact Dr. Dean Eppler of the LSS Project Office directly if you have any questions about this event. Dr. Eppler may be reached at dean.b.eppler@nasa.gov and 281-244-8216.

Cordially,

Matthew J. Leonard for

Christopher J. Culbert

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